

Characterization of oyster nut oil as an alternative fuel in internal combustion engines

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In Tanzania, the diesel to petrol consumption ratio is 3:1. This is a skewed scenario. High consumption of diesel oil caused by increased use in transportation, electricity generation, agriculture and industries. Increase of the diesel consumption is negatively affecting the economic set up of the country. In an effort to contribute to retard the diesel over consumption, an alternative fuel which comes from resources available locally within the country is veritable. Efforts done on biofuels from different sources and their effect are in record, but there is a need to widen the scope. In view of this, a potential source of oystemut oil and its blends with diesel oil has been investigated for use in compression ignition engines. The results revealed that the straight oystemut oil had the unfavorable characteristics suitable for use in compression ignition (C.I). It had viscosity of 36.84mm²/s, density of 915.62kg/m³ and failed to be distilled; as compared to viscosity (2.0 - 5.3 mm²/s), density of (817 - 867 kg/m³) and distillation temperature to be not more than 362°C in diesel fuel. Blends of 5%, 10%, 15% and 20% oystemut oil in a diesel bare, improved the fuel density characteristics to (848.53 - 859.19 kg/m³), viscosity (4.62 - 6.54 mm²/s) and distillation temperatures (299.2 - 311.8°C). Engine performances of the blends were comparable with that of pure diesel oil. With this regards, the blends are adequate for use in a diesel fueled engine. However, further studies on combustion characteristics and emission characteristics have to be considered.